UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/626,456	07/23/2003	Paris Smaragdis	MERL-1464	2550

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MITSUBISHI ELECTRIC RESEARCH LABORATORIES, INC.
201 BROADWAY
8TH FLOOR
CAMBRIDGE, MA 02139

EXAMINER
OPSASNICK, MICHAEL N

ART UNIT	PAPER NUMBER
2626	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *9/19/08*.

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *1,2 and 4-18* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *1,2,4-18* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on *23 July 2003* is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   Applicant's request for reconsideration of the finality of the rejection of the last Office

action is persuasive and, therefore, the finality of that action is withdrawn. Examiner notes that

the Final Rejection, mailed on 6/27/2008, inadvertently addressed the old version of the claims,

and did not address the claim amendment filed 3/12/2008. These claim amendments will now be

addressed.

Claim Rejections - 35 USC § 101

2.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or
> any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and
> requirements of this title.

3.   Claims 1,2,4-16 are rejected under 35 U.S.C. 101 because the claimed invention is

directed to non-statutory subject matter.

        Claims 1,2,4-16 are directed to calculating signal features which does not fall into one of

the enumerated four categories of patent eligible subject matter recited in 35 U.S.C. 101

(process, machine, manufacture, or composition of matter).

        Claims 1,2,4-16 are not directed toward:

1) a process/method (nothing is processed/transformed, the steps performed are mathematical matrix calculations); a statutory "process" under 35 USC 101 must (a) be tied to another statutory category (such as a manufacture or a machine), or (b) transform underlying subject matter (such as an article or material) to a different state or thing. Claims 1,2,4-16 neither transform underlying subject matter nor positively recite structure associated with another statutory category, and therefore do not define a statutory process.

2) a machine -there are no claim elements towards an appropriate apparatus, e.g. the elements of a device that would perform the claim steps.

3) a manufacture (no claim elements pertain to an output product nor 4) a composition of matter.

Furthermore, the claims are directed to a method calculating features from signals, and as claimed, is a mathematical calculation where the claims do not perform an underlying transformation of the underlying state to a different state or thing. If the acts of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter (Benson, 409 U.S. at 71-72, 175, USPQ at 676). Furthermore, claims define nonstatutory processes if they simply manipulate abstract ideas (Warmerdam, 33 F.3d at 1360,31 USPQ2d at 1759). As examples of statutory transformations of underlying subject matter (such as an article or material) to a different state or thing , (Alappat, 33 F.3d at 1542-4,31 USPQ2d at 1556-7), the claimed invention as a whole is directed to a combination of interrelated elements which combine to form

a machine for converting discrete waveform data samples into antialiased pixel illumination

intensity data to be displayed on a display means; in Arrhythmia,958 F.2d, 22USPQ at 1037, the

claimed transformation of data represented the condition of a patient's heart; in State Street (149

F.3d at 1373-73, 47 USPQ2d at 1601-02), the claimed transformation of data by a machine

through a series of mathematical calculations into a final share price momentarily fixed for

recording and reporting purposes and even accepted and relied upon by regulatory authorities

and in subsequent trades.

Claim Rejections - 35 USC § 102

4.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on
> sale in this country, more than one year prior to the date of application for patent in the United States.

5.   Claims 1,5-7,10,11,16-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Lee

et al (6151414).

As per claims 1,10,a computer implemented method for detecting components of a non-

stationary signal (abstract), comprising the steps of:

acquiring the non-stationary signal (as acquistion of signals – fig. 1, subblocks 110,130;

col. 1 lines 10-18);

constructing a non-negative matrix of the non-stationary signal, the matrix including columns representing features (as matrix containing features – abstract; non-negative – col. 2 lines 45-50; col. 3 lines 50-55) of the non-stationary signal at different instances in time (the columns representing different representations – i.e., in the example of image application - the number 2 is taken at different times -- fig.2, subblock 220; examiner also notes that Lee discloses the use of this technique also in voice and video - col. 1 lines 10-15; an artisan of ordinary skill in the art would readily recognize that these type of signals vary with time);and

producing characteristic profiles and temporal profiles of the non-stationary signal by factoring the non-negative matrices (as factoring the non-negative matrix into WV – col. 3 lines 45-60; wherein the characteristics are intensity – col. 6 lines 45-52 – applied to applicants definition of the claim scope – applicants specification, para 39-41; and temporally the multiple images can be taken at different times -- fig. 2, subblock 220, shows different snapshots of "2", and taken in the spirit of applying this technique to video – Lee, col. 1 lines 10-15, as applicable to applicants definition of video/image temporal – applicants spec, para 39-41).

As per claims 5-7,10,16, Lee discloses the use of the technique to voice, images (2D), video (3D), - video contains audio and video,i.e., both signals are acquired simultaneously; etc. – col. 1 lines 10-15).

As per claim 11, <u>Lee et al (6151414)</u> teaches factoring matrix X(nxp) (corresponding to claimed matrix F) into W(nxr) – corresponding to claimed W - and V(rxp) – corresponding to claimed H; (all found in col. 3 lines 45-65) such that a cost function is minimized/optimized – col. 3 line 65 - col. 4 line 20).

Claims 17,18 are system claims that perform the method steps of claim 1 above and as such, those steps are similar in scope and content to claim 1 above and therefore are rejected under similar rationale as presented against claim 1 above; the steps pertaining to acquiring and sampling the input signal is taught by the Lee reference (col. 1 lines 10-15). An artisan of ordinary skill in the art would easily recognize that a system designed to handle audio, voice, image, and video data requires a sensor (ex., microphone for audio), sampling, framing, and generic processing of such signals.

Allowable Subject Matter

6.   Claims 2,4,8,9,12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and amended to overcome the 35 U.S.C. 101 rejections.

Response to Arguments

7.   Applicant's arguments received 9/19/2008 have been fully considered but are moot in view of the new grounds of rejection.

Conclusion

8.   The prior art made of record and not relied upon is considered pertinent to applicant's

disclosure.   Please see related art listed on the PTO-892 form.

9.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Michael Opsasnick, telephone number (571)272-7623,

who is available Tuesday-Thursday, 9am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Mr. Richemond Dorvil, can be reached at (571)272-7602. The fax phone number for

the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Michael N. Opsasnick/
Primary Examiner, Art Unit 2626
7/30/09